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William F. Caton, Acting Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Notice of Proposed Rulemaking and Order, *Schools and Libraries Universal Service Support Mechanism*, FCC 02-8, CC Docket No. 02-6

Dear Mr. Caton:

Dell Computer Corporation recognizes that the Commission's E-Rate Program has been instrumental in greatly enhancing the educational opportunities available at schools and libraries nationwide, and applauds the Commission for its efforts to expand on this success by seeking comment on steps it can take to improve the program in the pending *Notice of Proposed Rulemaking* in CC Docket No. 02-6.[1] Most important, Dell believes the Commission can best achieve its goals in this proceeding by fully embracing emerging technologies, including wireless technologies, and submits these initial comments in furtherance of those goals.

1. The E-Rate program should remain technologically neutral.

As the Commission noted in its *Universal Service Order*, technological neutrality is both a guiding principle of section 254 of the Communications Act and a tool regulators should use to allow the market to bring to consumers the solutions that best fit their needs: "Technological neutrality will allow the marketplace to direct the advancement of technology and all citizens to benefit from such development."[2] Dell commends the Commission on its commitment to this principle, and believes that steps are necessary to modify the Commission's rules and policies regarding the eligibility of

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[1] Notice of Proposed Rulemaking and Order, *Schools and Libraries Universal Service Support Mechanism*, FCC 02-8, CC Docket No. 02-6 (rel. Jan. 25, 2002) ("*E-Rate NPRM*").

[2] Report and Order, *Federal-State Joint Board on Universal Service*, 12 FCC Rcd. 8776, ¶ 49 (1997) ("*Universal Service Order*").

wireless services for support under the E-Rate Program so that distribution of funds does not favor wireline technology over wireless technology.[3]

2. This is a time of rapid innovation in the wireless world; schools and libraries in this country should benefit fully from the technological advances being made.

The four years since the implementation of the E-Rate support mechanism have seen dramatic advances in wireless technologies. When the Institute of Electrical and Electronics Engineers established IEEE 802.11 in 1997, wireless vendors began to produce standardized, interoperable products. The introduction of 802.11b brought transmission speeds to 11 Mb/s, and fostered explosive growth in the wireless industry. With the IEEE's recent approval of 802.11g, which permits transmission speeds of up to 54Mb/s and is backward compatible with earlier equipment produced under the 802.11b standard, wireless connectivity has become a more viable alternative than ever.

These faster connection speeds have been enhanced by increased use of readily accessible unlicensed spectrum and emerging primary applications to make wireless technologies more supportive of innovative applications that cater to a variety of learning styles. Additionally, the scalability of wireless solutions makes them ideal for school districts faced with growing and changing populations that increasingly are forced to rely on mobile classrooms to meet the needs of their communities. The benefits of wireless networking technologies -- mobility, flexibility, and ubiquity -- cannot be understated.

On a practical level, wireless technologies can offer a variety of solutions to the difficulties faced by inner city and rural schools that are not yet wired and thus are unable to take advantage of many of the basic telecommunications services currently funded by the E-Rate Program. Wireless networks -- especially those based on standards such as 802.11 that operate using unlicensed spectrum -- can have lower monthly costs than wireline networks. Wireless networks also are easy to put in place, often resulting in less disruption and lower installation costs than wireline networks. For example, a wireless network can be installed in a relatively short time, without extensive construction or, in the case of older buildings, the need to upgrade electrical systems or remove asbestos (both of which are unfunded). And where fiber optic connectivity is not a realistic possibility because of budget constraints, wireless networks can provide connection speeds similar to T-1 circuits. Finally, when combined with wireless laptop computers and charging stations, wireless technologies offer the ability to connect *any* classroom -- allowing every student to reap the benefits of connectivity and enabling schools and libraries to adapt to their students' changing needs without significant additional cost or planning.

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[3] *See E-Rate NPRM*, ¶ 21.

3. Dell's experience working with schools and libraries suggests that there can be significant advantages to wireless connectivity.

Dell's experience to date in working with schools and libraries to ensure that they have access to the latest networking technologies provides concrete examples of the benefits of wireless networking solutions. Dell's TrueMobile Wireless Computer Lab, for example, gives schools the power to turn any classroom into a computer lab capable of supporting the most up-to-date educational technologies. In conjunction with Vanderbilt and Lipscomb universities, Dell Student Technology Leaders armed with a Dell-donated, fully loaded TrueMobile Wireless Computer Lab are teaching computer and Internet skills to students at 10 public high schools in Tennessee that, without a wireless network solution, might not be able to afford such connectivity. The Student Technology Leaders are able to roll the TrueMobile Lab into any classroom, distribute laptop computers and begin class in less than 15 minutes. Once class is over, they simply collect the laptops and roll the TrueMobile Lab on to the next classroom.

As the success of Dell's TrueMobile Wireless Computer Lab suggests, these are the types of programs that should be supported by the E-Rate Program if it is to achieve one of its primary objectives: eliminating the Digital Divide. With at least 98 percent of public schools now connected to the Internet, the next steps for the Program are clear: establishing connections for those poorest and most remote schools that still lack them, and maximizing the usefulness of the Internet in all schools. Wireless solutions can and should be full partners in achieving both of these goals.

4. The E-Rate's funding mechanisms should be revisited to ensure that they allow schools and libraries to choose the solutions that are right for them.

Dell believes that if the Commission is to truly pursue a policy of technological neutrality in administering the E-Rate Program, it should allow consumers (in this instance, schools and libraries) to freely choose among competing technologies in order to maximize benefits they can garner from their often limited financial resources. Specifically, the Commission should reconsider its eligibility rules regarding wireless LANs and WANs that are used exclusively or primarily for Internet connectivity, and increase the flexibility afforded to E-Rate participants in structuring their financing arrangements. In paragraph 15 of the *E-Rate NPRM*, the Commission seeks comment on "whether the mechanism could be improved by changes in [the] current eligibility policies regarding (a) Wide Area Networks [and] (b) wireless services."[4] And in paragraph 21, on whether the Commission should "modify any rules or policies regarding the eligibility of wireless services for support under the schools and libraries mechanism so that distribution of funds is consistent with [the] principle of competitive neutrality and does not favor wireline technology over wireless technology."[5] Dell respectfully suggests that the answer to each of those questions should be yes.

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4 *Id.*, ¶ 15.

5 *Id.*, ¶ 21.

Wireline technologies currently are treated more favorably under the Commission's funding eligibility rules than are their wireless competitors. For example, at present a school can receive funding to cover the costs of wiring its classrooms for Internet connectivity with copper, fiber or coaxial cable (including the costs of bays, jacks, blocks, panels and terminals necessary for a wireline solution), while a functionally equivalent wireless network solution would receive funding only for its antennae. Such discrepancies can lead schools to choose more expensive (yet subsidized) wireline solutions over what often are more cost effective wireless alternatives. In addition, under the current funding system, the E-Rate Program often has had the unintended consequence of allowing those schools and libraries that already are fully networked to obtain the most advanced services, while doing little to enable schools and libraries in remote or less affluent urban areas to put in place even the most basic network infrastructure. These are the outcomes that technological neutrality is intended to prevent. To be clear, Dell does not mean to suggest that those schools seeking wireless upgrades or additions should no longer be able to do so under Priority One; rather, Dell recommends that wireless networks also be a Priority Two connectivity option. The E-Rate's funding mechanism should allow schools and libraries with an urgent need for network services the ability to obtain the solution that best fits their needs, and can do so without having to wait until more affluent schools have upgraded their existing telecommunications facilities.[6]

As a first step in allowing schools to choose technologies that truly suit their specific needs, the Commission should reconsider its funding rules that discourage schools and libraries from investing in wireless equipment that they will actually own, while guiding them to lease wireline facilities from telecommunications providers. Providing connectivity through wireless LANs over unlicensed spectrum is already generally less expensive after start-up costs than wireline solutions, and this cost differential is likely to increase as technologies evolve. Depending on the structure and existing facilities in the building to be connected, wireless can have cheaper start-up costs as well. And its advantages in mobility, flexibility and scalability are obvious. Yet if schools and libraries continue to be forced to pay full fare for wireless solutions, while being offered deep discounts on wireline alternatives, they will naturally continue to make choices that are not in their best interests, short term or long term.

[6] Dell shares the Administration's commitment to leaving no child behind, and urges the Commission to focus its energies on finishing the job it so optimistically started: connecting *every* school to the Internet.

Dell is excited to participate in this important proceeding and looks forward to helping the Commission explore additional steps that can be taken to further the success of the E-Rate Program.

Respectfully Submitted,

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WILLIAM E. RODRIGUES
Vice President and General Manager
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CERTIFICATE OF SERVICE

I, Daniel McCuaig, hereby certify that on this 5th day of April 2002, copies of the foregoing "Comments of Dell Computer Corporation" were delivered by hand via courier to the persons on the attached list.

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